

BG95M5 Release Notes

LPWA Module Series

Rev. BG95M5_Firmware_Release_Notes_V0205_01.001.01.001

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1 Preamble

This document provides the Release Notes for BG95M5 firmware version: **BG95M5LAR02A05_01.001.01.001**. It describes major changes compared to BG95M5 firmware version **BG95M5LAR02A03_01.002.01.002**. For a detailed listing of all changes, please refer to the BG95 AT Command Set.

Before:

ATI

Quectel

BG95-M5

Revision: BG95M5LAR02A05

After:

ATI

Quectel

BG95-M5

Revision: BG95M5LAR02A05

AT+QGMR

BG95M5LAR02A05_01.001.01.001 //Added the new AT to query the full version information

AT+QAPPVER

+QAPPVER: 01.001.01.001 //Added the new AT to query the application version information

2 Matters Needing Attention

SN	Brief Description
[1]	Not support Cat-M1 CE Mode B.

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3 New Features

3.1 New Features of Modem Protocol

Item /Category	Brief description	Since
SIM	Added support AT+QCFG="sim/onchip" command.	R02A02_01. 002.01.002
NETWORK	Added support for LTE Antenna RF Tuner function.	R02A02_01. 002.01.002
NETWORK	Added the AT command AT+QNWCFG="hplmnsearch_ctrl" to configure whether the HPLMN searching timer is enabled.	R02A02_01. 003.01.003
NETWORK	Added AT command AT+QCFG="bandrestore" to restore module band configuration to its default.	R02A02_01. 003.01.003
NETWORK	Added command AT+QCFG="timer",3402 for get T3402 configuration.	R02A03_01. 001.01.001
NETWORK	Added command AT+QNWCFG="cfun_init_mode" to configure the CFUN mode when the module power on.	R02A03_01. 001.01.001
NETWORK	Added command AT+QNWCFG="3gpp_rel_control" to configure NB/CATM 3GPP release version.	R02A05_01. 001.01.001
NETWORK	Added command AT+QNWCFG="nb_feature_ctrl" to configure NB features.	R02A05_01. 001.01.001
NETWORK	Added command AT+QNWCFG="catm_feature_ctrl" to configure CATM features.	R02A05_01. 001.01.001
NETWORK	Added command AT+QNWCFG="pci_lock" to restrict module registration to a specified cell.	R02A05_01. 001.01.001
NETWORK	Added profile configuration for NTT DoCoMo certification.	R02A05_01. 001.01.001

3.2 New Features of Modem APP

Item /Category	Brief description	Since
QuecOpen®	Added support load QuecOpen application from NAND DAM partition.	R02A02_01. 001.01.001
GNSS	Added AT+QGPSCFG="gpsdop" to support get the position accuracy data.	R02A02_01. 001.01.001
FTM	Added support GSM FTM RX function.	R02A02_01. 001.01.001

QuecOpen®	Added QAPI for DFOTA solution.	R02A02_01. 001.01.001
QuecThing®	Added support QuecThing function.	R02A02_01. 001.01.001
QuecOpen®	Added QAPI for SMS solution.	R02A02_01. 002.01.002
QuecOpen®	Added QAPI to support GNSS XTRA related operation.	R02A02_01. 002.01.002
QuecLocator®	Added AT+QCELLSCAN to support get the neighbor cell information.	R02A02_01. 002.01.002
MQTT	Added AT+QMTPUBEX to support publish JSON format data.	R02A02_01. 002.01.002
GNSS	Added support configure GNSS power on mode as cold/warm/hot start.	R02A02_01. 003.01.003
GENERAL	Added Fast powered down function.	R02A03_01. 001.01.001
QuecOpen®	Added QAPI to support SMS list operation.	R02A03_01. 001.01.001
DFOTA	Added command AT+QFOTADL="<file_name>",<type> to support copy DFOTA data package from file system to NAND storage partition.	R02A03_01. 002.01.002
GENERAL	Added command AT+QCFG="dbgctl" to enable or disable QXDM log output or not.	R02A03_01. 002.01.002
GENERAL	Added command AT+QCFGEXT="USBNET" to configure enable/disable ECM function.	R02A03_01. 002.01.002
GENERAL	Added command AT+QCFGEXT="chip_id" to get the chip serial number.	R02A03_01. 002.01.002
GENERAL	Added command AT+QPOWD=2 to support fast power down module.	R02A03_01. 002.01.002
HTTP	Added commands AT+QHTTTPUT/QHTTTPUTFILE to support HTTP put function.	R02A03_01. 002.01.002
JAMMING DETECTION	Added support GNSS jamming detection.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI to support XTRA operation.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI to support access DFOTA storage partition.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI to support multiple SPI slaver operation.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI to support access DAM_CFG partition.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI qapi_QT_Get_SecBoot_Status to get the secure boot function enabled or not.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI qapi_Status_t qapi_QT_Chip_Serial_Num_Get to get the chip serial number.	R02A03_01.

		002.01.002
GENERAL	Added configuration support for FirstNet-ATT.	R02A05_01. 001.01.001
GNSS	Added AT+QGPSCFG="xtra_autodownload" command to control whether GNSS automatically downloads XTRA files.	R02A05_01. 001.01.001
GNSS	Added AT+QGPSCFG="gpsweek" command.	R02A05_01. 001.01.001
GNSS	Added command AT+QGPSCFG="xtra_urc" to configure whether to report the related URC in the automatic download process of XTRA files.	R02A05_01. 001.01.001
MQTT-SN	Added support MQTT-SN functionality.	R02A05_01. 001.01.001
NITZ	Added command AT+QCFG="timeupdate" to configure whether the local time of the module is automatically updated according to the network time.	R02A05_01. 001.01.001
PSM	Added command AT+QPSMAUXCFG to optimize the configuration of PSM function.	R02A05_01. 001.01.001
QCTEMP	Added AT+QCTEMP command used for high temperature alarm detection.	R02A05_01. 001.01.001
QuecOpen®	Added new QAPI qapi_QT_Tick_To_Time_V2 for converting 64-bit tick values to a specific unit of time.	R02A05_01. 001.01.001
SMS	Added support for handling CMS error code 42/47.	R02A05_01. 001.01.001
SSL	Added command AT+QSSLRECV=<cliendID>,0 to query the length of received read/unread data.	R02A05_01. 001.01.001
SSL	Added AT+QSSLCFG configuration to enable renegotiation function.	R02A05_01. 001.01.001
SSL	Added SNI functionality to SSL for MQTT.	R02A05_01. 001.01.001
SSL	Added command AT+QSSLCRYPT used for AES encryption/decryption and MD5 calculation.	R02A05_01. 001.01.001

4 Improved Features

4.1 Improved Features of Modem Protocol

Item/Category	Brief description	Since
PSM	Fixed the bug that where the module could not access PSM properly after the SIM card was unlocked	R02A02_01.001.01.001
SIM	Fixed the bug that AT+QPINC occasionally returned error.	R02A02_01.002.01.002
NETWORK	Optimized AT+QCFG="band"/"nwscanmode"/"iotopmode"/"nwscanseq" commands match different project configurations.	R02A02_01.002.01.002
NETWORK	Fixed the bug that AT+QNWINFO returning incorrect network information.	R02A02_01.002.01.002
GENERAL	Optimized GSM RF Antenna tuner function.	R02A02_01.002.01.002
NETWORK	Fixed the bug that AT+CGDCONT could mistakenly delete active PDP connections	R02A02_01.003.01.003
NETWORK	Fixed the bug that RRC was released but AT+QENG="SERVINGCELL" returned an incorrect RRC status.	R02A03_01.001.01.001
NETWORK	Optimized RF driver to solve GSM switch spectrum anomaly issue.	R02A03_01.002.01.002
SMS	Added to support CMS Error code 42/47.	R02A03_01.002.01.002
NETWORK	Fixed the bug that AT+QCSCON command returned incorrect RRC connection status occasionally.	R02A05_01.001.01.001
NETWORK	Optimized AT+QCSQ command to support configure whether URC is automatically reported.	R02A05_01.001.01.001
SIM	Added Qualcomm CR#2890754 to fix the bug that failed to update the SIM profile when TCP connection was established.	R02A05_01.001.01.001

4.2 Improved Features of Modem APP

Item/Category	Brief description	Since
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LwM2M	Fixed the bug that abnormal operation on GPIO26 after enabling LwM2M function.	R02A02_01. 001.01.001
FTM	Fixed the bug that module cannot switch from GSM TX FTM to LTE TX FTM.	R02A02_01. 001.01.001
GENERAL	Removed the unexpected URC output while module entering into PSM.	R02A02_01. 001.01.001
TCP/IP	Fixed the bug that AT+QAUGDCNT returned incorrect result.	R02A02_01. 001.01.001
TCP/IP	Fixed the bug that AT+QIDNSGIP returned incorrect IP address under IPV6 supported network.	R02A02_01. 001.01.001
GENERAL	Fixed the bug that when the voltage is lower than 3.2V, the voltage percentage queried by the AT+CBC command is always 100%	R02A02_01. 002.01.002
NIDD	Fixed the bug that module occasionally crashed when using AT+QCFGEXT="nipdr" to receive hexadecimal data.	R02A02_01. 002.01.002
GENERAL	Optimized that unexpected abnormal power consumption during idle mode.	R02A02_01. 002.01.002
FTP	Fixed the bug that module returned error when using AT+QFTPGET to get files with file names longer than 254 characters.	R02A02_01. 002.01.002
GENERAL	Fixed the bug that AT+CPSMS?/AT+QPSMEXTCFG?/AT+QPSMCFG? returned the result which don't match the description in the guidance document.	R02A02_01. 003.01.003
GENERAL	Optimized that change the USB descriptor as Quectel.	R02A02_01. 003.01.003
GENERAL	Fixed the bug that AT+CTZU command probability returned an incorrect time.	R02A02_01. 003.01.003
GNSS	Optimized GNSS by using the AT+QGPSLOC command to configure whether location information is output in URC.	R02A02_01. 003.01.003
GNSS	Disabled GTP function by default.	R02A02_01. 003.01.003
QuecLocator®	Optimized AT command AT+QCELLSCAN to add timeout protect mechanism.	R02A02_01. 003.01.003
QuecOpen®	Fixed the bug that ADC cannot be closed completely by QAPI.	R02A02_01. 003.01.003
TCP/IP	Optimized AT+QICFG="recvind" used to configure to enable/disable the length of output data in URC information.	R02A02_01. 003.01.003
GENERAL	Fixed the bug that "APP RDY" loss issue.	R02A03_01. 001.01.001

GNSS	Fixed the bug that module stopped positioning early during GNSS positioning.	R02A03_01.001.01.001
GNSS	Fixed the bug that the GNSS NMEA sentence had only 5 decimal places but should have been 6 decimal places.	R02A03_01.001.01.001
QuecOpen®	Fixed the bug that QAPI of ATC Pipe send out data was incomplete when it encountered '\0'.	R02A03_01.001.01.001
LwM2M	Optimized LwM2M AT commands.	R02A03_01.001.01.001
SSL	Fixed the bug that data loss during SSL retransmission.	R02A03_01.001.01.001
CoAP	Fixed the bug that module crashed occasionally with send CON type data.	R02A03_01.001.01.001
PING	Fixed the bug that URC results were not returned for a period of time after AT+QPING was executed continuously.	R02A03_01.001.01.001
CoAP	Added Qualcomm CR#2829284 to fix "CoAP Crash during send failure due to double free of CoAP packet" issue.	R02A03_01.002.01.002
CMUX	Fixed the bug that upload file failure via CMUX port 3 or 4.	R02A03_01.002.01.002
DFOTA	Fixed the bug that failed to download DFOTA package from some HTTP servers that do not support HTTP head method.	R02A03_01.002.01.002
GENERAL	Fixed the bug that several pins' power level cannot hold default configuration during downloading progress.	R02A03_01.002.01.002
GENERAL	Fixed the bug the firmware upgrade failure via QFLASH firehose mode.	R02A03_01.002.01.002
GENERAL	Fixed the bug that part of the data was truncated and lost when sending data with "\0" characters in transparent mode after enabling AUX AT port (via AT+QDIAGPORT).	R02A03_01.002.01.002
GENERAL	Fixed the bug that USB failed to load successfully on the Raspberry Pi evaluation board.	R02A03_01.002.01.002
GENERAL	Fixed the bug that GPIO_O7 changed abnormally when module starting up.	R02A03_01.002.01.002
GENERAL	Fixed the bug that power level of debugging UART pins were always out of control during the firmware download progress.	R02A03_01.002.01.002
GNSS	Fixed the bug that AT+QGPSGNMEA="GSV" returned error occasionally if configure AT+QGPSCFG="autogps",1 .	R02A03_01.002.01.002
GNSS	Fixed the bug that leap second time injection error causes GNSS	R02A03_01.

	location failure.	002.01.002
GNSS	Added QCOM CR2748699 to fix GNSS load failure issue.	R02A03_01. 002.01.002
MQTT	Fixed the bug that encountered concatenated package in MQTT downlink data.	R02A03_01. 002.01.002
MQTT	Fixed the bug that module would fail to connect to a normal server after connecting to a closed server several times in a row.	R02A03_01. 002.01.002
MQTT	Fixed the bug abnormal power consumption encountered after close the MQTT connection.	R02A03_01. 002.01.002
QuecOpen®	Fixed the bug that QuecOpen SSL QAPI cannot work normally after enable secure boot function.	R02A03_01. 002.01.002
QuecOpen®	Optimized module only "*.mbn" format QuecOpen application can be loaded if secure boot enabled.	R02A03_01. 002.01.002
QuecOpen®	Fixed the bug that encountered memory leak while frequent opening/closing of UART serial port.	R02A03_01. 002.01.002
QuecOpen®	Optimized internal object pool to 140K Bytes.	R02A03_01. 002.01.002
TCP/IP	Fixed the bug that TCP handshake failure if the "shift.cnt" of the "TCP Window Scale Option" in TCP SYNC frame is 14.	R02A03_01. 002.01.002
CoAP	Fixed the bug that CRC validation failure for COAP downloaded FOTA file.	R02A05_01. 001.01.001
DFOTA	Optimized AT+QFOTADL command to download the server files to the Apps file system.	R02A05_01. 001.01.001
DFOTA	Optimized command AT+QFOTADL to support breakpoint download and resume function.	R02A05_01. 001.01.001
DNS	Merge the CR#2895096 to fix the bug that modem crash issue during test DNS query in DT lab.	R02A05_01. 001.01.001
DTLS	Fixed the bug that no URC was reported during the configured timeout when DTLS couldn't connect.	R02A05_01. 001.01.001
FOTA	Optimized the FOTA upgrade strategy to solve the potential bug of insufficient memory causing the data stream cannot be properly parsed.	R02A05_01. 001.01.001
FOTA	Optimized FOTA upgrade strategy to solve the problem that FOTA download fails due to the failure of DNS resolution in the scenario where AP-side data services already exist.	R02A05_01. 001.01.001

FTM	Optimized LTE FTM TX sending logic to fix the bug that TX power of some LTE bands did not conform to the expected setting.	R02A05_01.001.01.001
GNSS	Fixed the bug that with AT+QGPSLOC=2 configuration, the module couldn't display some special latitude/longitude information correctly.	R02A05_01.001.01.001
GNSS	Fixed the bug that AT+QGPSXTRATIME command returned incorrect time, missing the leap seconds.	R02A05_01.001.01.001
GNSS	Fixed the bug that COG was not calculated correctly.	R02A05_01.001.01.001
GPIO	Optimized the number of GPIO interrupt support to 5.	R02A05_01.001.01.001
HTTP	Fixed the bug that after sending POST request when HTTP body data type is configured to 3(multipart/form-data), AT+QHTTPREAD always returns 705 error code.	R02A05_01.001.01.001
HTTP	Adjusted the maximum length of HTTP URL from 700 to 3000 bytes.	R02A05_01.001.01.001
Jamming Detection	Fixed the bug that related URC might be lost after removing the interference source in GSM network.	R02A05_01.001.01.001
MQTT	Fixed the bug in AT+QMTPUBEX command that if there are multiple pairs of curly braces in payload, data transmission will fail.	R02A05_01.001.01.001
NITZ	Added Qualcomm CR#2918361 to fix the bug that AT+CCLK probability returned an incorrect time after the module recovered from a network outage.	R02A05_01.001.01.001
PSM	Fixed the bug that when the module entered PSM but there is no PSM POWER DOWN URC reported.	R02A05_01.001.01.001
QuecLocator®	Fixed the bug that Queclocator doesn't work properly.	R02A05_01.001.01.001
QuecOpen®	Optimized that customer must invoke the QAPI QAPI_QT_MAIN_UART_ENABLE_SET firstly if want to configure the main AT port as a general UART port in a QuecOpen Application.	R02A05_01.001.01.001
QuecOpen®	Fixed the bug that source file cannot be deleted probabilistically after QuecOpen application was updated.	R02A05_01.001.01.001
QuecOpen®	Fixed the bug that TCP long connection consumption is high under QuecOpen.	R02A05_01.001.01.001
SSL	Fixed the bug that when SSL certificate file size exceeds 32K bytes would lead to connection establishment failure.	R02A05_01.001.01.001

5 Known Issues

NA.

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6 Functions

Basic Function

SMS	Voice Call	Data Call	Fax	USSD	PHB	STK	CMUX	Dual UART
Y	N	N	N	N	N	N	Y	N
FILE ¹⁾	Triple UART							
Y	N							

Protocol Function

TCP/UDP	PPP	FTP	HTTP	NITZ	PING	HTTPS	TCP SSL	FTPS
Y	Y	Y	Y	Y	Y	Y	Y	Y
MQTT	LwM2M							
Y	Y							

Special Function

GNSS	DFOTA	PSM	Quec Open [®]	Quec Locator [®]	Quec Thing [®]
Y	Y	Y	Y	Y	Y

NOTES

1. Y means the firmware supports this function.
2. N means the firmware does not support this function.
3. ¹⁾ Supports UFS FILE only.